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E N G I N E E R

ANNUAL REPORT OF THE CHIEF ENGINEER  
FOR THE YEAR ENDING DECEMBER 1936.

TO THE JOINT BOARD,  
INTER COUNTY RIVER IMPROVEMENT COMMISSION.  
KING AND PIERCE COUNTIES, WASHINGTON.

GENTLEMEN:

I have the honor to submit for your consideration a report on the work accomplished on the Puyallup, Stuck and White Rivers during the past year. This work has been planned and directed with the constant assistance of your Consulting Engineer, Mr. R. H. Thomson.

During this period there have been no floods. In fact, extreme low stages of the river maintained thruout the year and ideal conditions for construction work usually prevailed.

The direct efforts of our small working crew were confined chiefly to the performance of two main objects. The first of these was to clear the channel of such debris and growth as would cause restriction of its capacity. In this category we cut brush along many miles of the river bank where such brush was growing in silt deposited upon concrete revetment. Great quantities of small stumps and logs, which we found accessible by reason of the low stages of water, were removed from the channel. Also numerous old pile bulkheads and jetties, which interfered with the free flow of the river, were removed.

The other principle objective referred to was the dredging performed in the County Line Section. This work was continued thruout the year up until the end of October,

after which date the dredging operation was moved into the Auburn section. There the construction of a levee above the east Highway Bridge on the left bank of the river was begun and continued for about 900 feet up stream. This levee was then covered with a blanket of rock under the W P A project. The cost of this job is of interest because it involves the construction of a levee and protection thereof, making a complete job to compare with other types formerly used.

Cost of levee preparation	\$610.09
Cost of rock 3856 c y @ \$2.00	<u>7712.00</u>
Total cost 900 feet	8322.09 = \$9.26 per ft

The principle efforts of your Engineers thruout the year were directed toward the supervision of the W P A project which had been approved and started just prior to the beginning of the year. While we were not directly responsible for supervision of this project, we found our constant attention was required to effect efficiency. The project was separated into two main divisions, one, the clearing of the White River channel from the Northern Pacific Bridge, south of Auburn, to the Highway Bridge at Buckley; the other, the developing, hauling and placing rock for the stabilization of banks.

#### CHANNEL CLEARING UNDER W P A

A force ranging from 200 to 250 men was maintained on the White River from the first of the year until late in December when it was reduced to about half that size. These men were working under the authority of W P A project No. 65-93-921. They were supervised by the Corps of Engineers, U. S. Army, and paid out of W P A funds. The work was laid out and directed by the Army Engineers with the full and

active cooperation of your engineers.

The object of this project was to remove all logs and stumps in the river channel which were lying loose and might be picked up by flood waters and carried into lower reaches of the stream. The work was performed in the White River canyon, which reaches from the Buckley Bridge down stream to a point below the Auburn Wall, where the river breaks out into a wide flat valley. The foregoing stretch of the river runs thru a deep wide canyon ranging from a quarter to a half mile wide, bordered on each side with steep timber covered slopes. The floor of the canyon varies from 100 to 150 feet below the level of the flat country on either side above. No farm land and little property of any material value exists in the canyon. The river meanders from side to side and its channel at the beginning of this project was literally strewn with great piles of logs and stumps. A large portion of this drift and debris grew on the floor of the canyon and was up-rooted and washed away during flood stages of the river. The rest of it is borne down from the upper reaches of the river with high water. These log jams and loose drift constitute a considerable menace during the flood stages of the river. The drift is then carried down stream and lodges to form jams in the lower reaches of the river. These create obstructions in the main channel and tend to divert the water into the banks causing excessive erosion and often changing the course of the river. The formation of a log jam would be particularly dangerous in that section from the Auburn Wall downstream to the Northern Pacific Bridge, which forms a bottle neck in the channel.

The channel clearing was continued thruout the year. About the end of the year the crews working upstream

had reached the upper-most point, that is, the bridge at Buckley. At that time it was ascertained that by closing down the quarry work sufficient funds would be left in the project account to keep about 100 men working for another month. It was then decided to continue this work thruout January 1937 and the crews were directed to retrace their work cleaning up some of the worst piles of logs which had been left about two or three miles below the Buckley Bridge.

All in all, while not classing as primarily essential, this work has been effective and should reduce the drift hazard for a number of years to come. About half of the total cost of the project, or \$125,000, was spent upon it.

#### QUARRYING AND HAULING ROCK FOR BANK STABILIZATION.

The other part of the W P A project was conducted intermittently thruout the year under a similar set-up known as Project No. 65-93-918. A quarry site was purchased by the Inter-County River Improvement from J. Raush. It is located on the Kapowsin Highway about three miles south of Orting. About the middle of January 1936 the government entered this site with a shovel, compressor, two jack hammers and ten trucks under the direction of Mr. Ober. Considerable difficulty was encountered in finding men in his W P A forces who were capable of operating jack hammers. Also the shovel on the job was too small and in such bad condition that it was broken down a great part of the time. To add to these difficulties competent powder men, experienced in quarry work, were not employed. And altogether the results were so meager that, by the end of February, Col. Wild decided to replace Mr. Ober with another supervisor. Mr. Frank McHugh was put in charge of the job. Under Mr. McHugh the general morale of the government forces was somewhat improved and for

a short time rock began to come out of the quarry at a faster rate. However, after about two Weeks Mr. McHugh decided he would be unable to keep his equipment busy and produce sufficient rock fit to be used as rip rap. Mr. Ober had condemned the quarry as unfit for rip rap and had stated that except for the appearance of a few big boulders on the face the hill was composed entirely of dirt. The new supervisor took up the same line of thought and endeavored to get authority from the Pierce County Commissioners to move the job to the county owned quarry about 5½ miles further up the Puyallup River. This quarry is located at Electron and in general is about the same character of basalt as is found in the quarry at Orting, except the basalt is somewhat lighter. The Electron quarry also contains a small ledge of granite. The average weight of the rock at Electron is 165 pounds per cubic foot and the average weight of the rock found in the Orting quarry, as checked up by a number of samples, is 170 pounds per cubic foot.

However upon the constant insistence of the Inter-County Engineers, the quarry operation at Orting was continued by the W P A forces until the 20th of April. During the weeks prior to that date many consultations were held between your engineers and the government engineers and supervisor. It was very evident that we were finding it necessary to handle considerably more waste than had been anticipated. On the other hand it was also evident that should we move to the Electron quarry the additional cost of the longer haul would more than off-set the cost of waste disposal. Furthermore there was considerable evidence that, due, either to the lack of knowledge as to how the quarry should be operated or the desire to confirm previously expressed judgment, the supervisor was doing many things in the quarry which tended

towards condemning it as a proper quarry rather than toward proving what actually existed there as usable rock. He stated time and again that sufficient usable rock could not be procured there and finally about the middle of April stated that " the quarry was all washed up and it would be impossible to get any more rock." It became evident also that the Army Engineers were relying upon his judgment as to quality of the quarry.

Col. Wild finally on the 20th of April closed the federal operation down giving as the reason that the curtailment of W P A funds necessitated this move. The quarry work was continued from that date under the direction of the Inter-County River Improvement. The government kept ten trucks at work as well as a substantial crew of men on the river handling the dumping and placing. The Inter-County employed eleven additional trucks. A shovel was rented from L. J. Dowell and placed on the job. We also furnished all the equipment in the quarry and employed a crew of men to drill and shoot rock and supervise loading. From then on things began to move in the quarry.

After about two weeks the quarry was cleaned up and great quantities of excellent rock disclosed. The 21 trucks were kept busy all the time and the operation moved smoothly 12 hours a day. The efficiency of the whole operation was materially increased and rock began to move to the river in a satisfactory manner. By the latter part of June the Inter-County River Improvement had so nearly exhausted its annual budget that it was found necessary to close the quarry work down.

During the period from April 20 to June 24th, the Inter-County had quarried and hauled to the river 19,064 cubic yards of rock. During the period of government supervision,

from January 15 to April 20th, the government had hauled and placed 6000 cubic yards of rock. The cost to the Inter-County for developing, loading and hauling rock amounted to \$1.90 per cubic yard. Upon the costs ascertained by the Inter-County operation it was shown definitely that the 19,064 yards hauled would have cost, if hauled from the Electron quarry an additional \$10,570. As it was, this rock cost in all \$33,198.75 of which the Inter-County River Improvement furnished \$22,838.75. The government contribution of \$10,360 was used to furnish its ten trucks.

The nine weeks of operation by the Inter-County proved definitely that the quarry selected was the best possible to locate within an economical hauling distance of the river. At the completion of our supervision we left the quarry with about 15,00 yards of rock shot down and ready to block-hole and haul out.

The work was undertaken again by the Army Engineers and operation started on July 8th with all equipment furnished by the federal government. During July they operated eleven working days, the rest of the time being consumed by holidays or shut-downs due to shovel repairs. The shovel placed on the job at this time was a one-yard Osgood which proved unsatisfactory. During the month of August the shovel operated only two days, the 6th and 7th, during which time only 66 loads of rock were hauled to the river. Both the owner of the shovel and the Army Engineers then decided that it was unfit for the job and moved it off. We were then informed that the quarry work was shut down permanently due to the fact that it was impossible to procure another shovel. At this time negotiations were being carried on with Capt. Zimmerman, Col. Wild being in Alaska. In substantiation of Capt. Zimmerman's position it should be added that at his request the procurement office of the W P A advertised for a shovel to be used



on this job and received one bid only, which was unsatisfactory.

Finally upon the return of Col. Wild, about the first of September, and only after the insistance by the Joint Board and the Engineers who met with Col. Wild in his office in Seattle, it was agreed to requisition a shovel and trucks and the other necessary equipment to operate the quarry and haul to the river that rock which had been shot down. Accordingly the Procurement Division of the W P A invited and opened bids, and about the 15th of September equipment was moved into the quarry. This time a 1½ yard Thew Lorrain gas shovel, owned by Northwest Construction Company of Seattle, was contracted for. It proved to be in good repair and an excellent machine for the job.

The actual work of hauling rock began about the 22nd of September and continued until the 29th inclusively. The equipment provided by the government at this time proved entirely satisfactory and good progress was made. The government supervisor had estimated that there was about 2,000 yards of rock shot down in the quarry, the Inter-County engineers had estimated not less than 8,000 yards was available and stated that it would probably run much greater than that, even as much as 15 or 16 thousand yards. During September 218 loads or 850 cubic yards of rock were hauled.

The W P A project began its work for the month of October on the 6th and made excellent progress thruout the month putting in 15 acutal working days of 12 hours each. About the middle of this month we were informed that the W P A safety inspector had ordered the quarry shut down due to its hazardous condition. In conference with Col. Wild we took the position that it was unnecessary to permit the quarry to get into such a hazardous condition and he agreed to attempt to make it safe and continue the operation. The govern-

ment started hauling rock in November on the 9th and about the same time the supervisor informed us that the quarry would be shut down immediately due to its unsafe condition.

Arrangements were then made thru Capt. Trudeau, representing Col. Wild, to have engineers of the Inter-County River Improvement to take over the supervision of the quarry furnishing the necessary men to operate it, the government leaving all of its equipment on the job. Mr. F. E. Rogers was placed in charge as supervisor. He had carried that responsibility during the previous Inter-County supervision. The quarry was made safe in about two days and operations began November 16 and continued thruout the month of November and up to December 19th, when the federal fund for this work was finally exhausted. During the last period of supervision by the Inter-County the workday was cut from 12 hours to 8 hours. However the gross results as expressed in yards of rock hauled amounted to about the same in 8 hours as had been obtained under the government supervision in 12 hours. W P A hauled from September 22 to November 13th, 7240 cubic yards; under Inter-County supervision from November 16 to December 19th, 8060 cubic yards, making a total during the last period of operation 15,300 cubic yards all of which had been shot down by the Inter-County before quitting in June.

The funds of the Inter-County River Improvement were so nearly exhausted at this time that it was necessary to provide an emergency appropriation to carry on this quarry work. Accordingly on November 12th the Board, meeting in joint session, approved by motion, duly made and passed, an expenditure from each of the river improvement funds of King and Pierce counties, not to exceed \$1,000 by each. During the final period of operation the payroll at the quarry was handled for the month of November by Pierce County in the amount

of \$317.35; for the month of December by King County in the amount of \$460.30.

Altogether thruout the year the W P A and the Inter-County, combined, developed and hauled to the river 42,588 cubic yards of rock. Of this, during both periods of supervision, the Inter-County hauled and placed 27,120 cubic yards and the government 15,468 cubic yards. The waste was measured November 6 and found to be 20,000 cubic yards. After that date an additional 1000 cubic yards of waste was handled. The accompanying table discloses in detail as to where and how the rock was placed on the river banks.

One of the interesting facts disclosed by this table is the amount of yards of rock required to protect a foot of embankment. The great variation in this figure is due to the variation in the type of bank protection. At a cost of \$2.00 a yard which the Inter-County determined under its own operation is a fair cost of quarrying, hauling and placing the rock, these figures disclose costs for stabilization of banks by the use of rock which are competitive and even cheaper than the costs obtaining under the old systems used. All of this points to the fact that in the future rock should be used entirely for bank protection.

The expenditures by W P A on these projects as reported to us by Capt. Trudeau appears as follows:

For rock work	\$101,000.00
For Snagging	<u>125,000.00</u>
Total of Project	\$226,000.00

# ROCK PLACEMENT

BY WPA.				BY I.C.R.I.				Total Loads	Total cu. yds
Job No.	Loads	cu. yds.	Date	Loads	cu. yds.	Date			
1	394	1182	Jan. & Feb	250	1000	Dec.	644	2182	
2	229	637	Mar.				229	637	
3	166	498	Mar. Apr.	203	812	May	369	1310	
4				1285	5140	May	1285	5140	
5				156	624	May	156	624	
6	326	1304	Oct.	7	28	Dec.	333	1332	
7	147	588	Nov.	209	836	Nov. Dec	356	1424	
8				713	2852	June "	713	2852	
9	723	2892	Aug. Sept	559	2236	"	1282	5128	
10	388	1552	October				388	1552	
11	321	963	Mar. Apr.				321	963	
12				456	1824	May June	456	1824	
13	446	1338	Feb. M. Apr	77	308	April	523	1646	
14	133	399	April	790	3160	Apr May	923	3559	
15	397	1191	Mar. Apr	10	40	Apr	407	1231	
16									
17				111	444	May June	111	444	
18									
19	14	56	Oct.	393	1572	" "	407	1628	
20									
21	75	300	Nov.	101	404	" "	176	704	
22	8	32	Oct.				8	32	
23				228	912	Dec.	228	912	
24				964	3856	Nov. Dec.	964	3856	
Groin #10	634	2536	Oct. Nov	268	1072		902	3608	
	<u>4401</u>	<u>15468</u>		<u>6780</u>	<u>27120</u>		<u>11181</u>	<u>42588</u>	

King County Trucks hauled 23 loads to Job No. 24 on the White River  
Pierce County " " 128 " " River Bend Farm, Puyallup River

# ROCK PLACED ON THE WHITE AND PUYALLUP RIVERS

## KING COUNTY

Job No.	Location	Length of Bank Protected feet	Type of Protection	Cu. Yds. Used	Cu. Yds. per ft. of Bank
10	Cleaver Wall	1800	Jetty & Blanket	5160	2.87
1	Charcoal Road	1200	Groined Blanket	2182	1.82
23	R.Bank E. Bridge	500	Blanket	912	1.82
24	L. " E. "	900	Blanket	3856	4.30
2	L. " W. "	2400	Blanket & Groins	637	.26
Total		6800		12747	

## PIERCE COUNTY

3	R.B.County Line	1500	Groins	1310	.87
4	L.B.Moceri	1800	Jetty & Groins	5140	2.85
9	R.B.McGee	2000	Blanket	5128	2.56
19	R.B.Sec.13,T20,R5E	1000	Blanket	1628	1.63
22	L.B.Salmon Creek	100	Groin	32	.32
13	R.B.Spinning	1300	Blanket	1646	1.26
14	L.B.Zander	1700	Blanket	3559	2.10
15	L.B.Sumner	850	Groined Blanket	1231	1.45
17	R.B.Creso Road	500	Groins	444	.89
11	R.B.Boatman "	1400	Groins & Toe "	963	.69
21	L.B.Puyallup	900	Groins & " "	704	.78
12	R.B.No. " Bridge	650	Blanket & "	1824	2.81
5	R.B.Clarks Cr. "	600	Groins	624	1.04
8	R.B. to Tacoma	5300	Groins	2852	.54
6	L.B. Clk.Cr.to S.19	2500	Groins	1332	.53
7	L.B.S.19 to Tacoma	3900	Groins	1424	.37
Total		26000		29841	

Grand Total 32800 42588

During the first period of supervision by the Inter-County engineers the shovel which was used on the job was contracted for with Louie J. Dowell. Thruout the period of its use all payments were made to Mr. Dowell and it was always understood that he was the rightful owner hereof. At the end of the job ( in fact, it was the accident that actually closed the job down a few days earlier than otherwise) the operator of the shovel wrecked it by permitting a large piece of rock to roll into it. The detail of this accident was reported in full in the engineers monthly reports for June and July. Sometime afterward a claim was filed with the county commissioners of each county representing that the shovel belonged to Frank McHugh, the federal supervisor on the job, and that Mr. Dowell was acting as his agent. The claim totaled damages of about \$10,000. It being refused by both boards of county commissioners, Mr. McHugh filed suit which case is now pending.

#### MUD MOUNTAIN DAM

During the early part of June it was learned that Congress had passed the Flood Control Act of 1936 and approved therein a long series of flood control projects which had been submitted thru the Army Engineers. Among those projects approved was the construction of a dam on White River at Mud Mountain. The act, however provided no funds for construction and it appeared that construction thereof must await future appropriations. This act of Congress stipulates further that the local sponsor, which is the Inter-County River Improvement in this case, must provide all rights-of-way, assume all damages which may arise out of the construction and operation of the project and provide for operation and maintenance after construction. Under the set-up for Mud Mountain this means that the federal

government has approved the expenditure, under the direction of the Army Engineers for the construction of the project, the amount of \$3,170,000 and that the Inter-County River Improvement in order to secure that must provide rights-of-way which are estimated to cost \$24,000.

Early in September Col. Wild informed us that the federal administration had set aside the sum of \$50,000 for the development of flood control projects in this district. This money was to come from the W P A funds and to be used in developing the most worthy project or projects in the district to the intent that such project or projects would be ready for contract at the earliest possible date after Congress should meet and appropriate funds therefor. He further advised that practically all of this money would be used in the development of Mud Mountain project. Accordingly a crew of men was placed on the site building camps and procuring exact topography at the dam site. Also a contract was let by the Army Engineers to Lynch Bros. of Seattle to complete borings at the dam site. All of this work has continued thruout the remainder of the year and is now, at its close, in a fine state of progress.

In connection with this work and complying with the request of Col. Wild's office a resolution was passed by the Joint Board giving assurances to the federal government that the Inter-County River Improvement would meet its responsibilities in compliance with the federal act and the Prosecuting Attorneys of each county were directed to proceed immediately with condemnation of the site. At the time of this writing the condemnation suits are now in progress.

## RECOMMENDATIONS

Having passed thru another year of operations during which we have tried and developed some radically new ideas upon this project we wish to make the following recommendations.

Relative to bank stabilization we believe that hereafter all bank protection should be made with heavy rock. We recommend the rock from the quarry at Orting as the best and most economical available. This quarry is now in an excellent state of development and shows great quantities of rock of such character as to be well fitted for use on our rivers. As to the program for the ensuing year there is a question as to how much money will be available for use other than the requirements of rights-of-way at Mud Mountain. Whatever funds are available for other purposes should be used in the future development of the quarry and hauling rock to the river. It is advisable to spend about \$2,000 in development work at the quarry before any attempt is made to haul rock. This work consists in removing the over-burden and stepping down the face of the quarry in such a way as to make the rock available for operation either on a small scale or large scale. Waste which would be shot from the top of the quarry would be allowed to lie in the depression next to the quarry face, which is now used as the operating floor.

In general rock can be hauled from the quarry at such economical prices as we have shown only when the operation is carried on on a large scale. As one of our major efforts for the coming year we have laid out to determine whether or not this work is feasible under small scale operation.

As to the rights-of-way for Mud Mountain, condemnation suits are now under way in both counties. In



Pierce County the certificate of necessity has been secured thru the courts under legal direction of Deputy Prosecuting Attorney, John E. Belcher. While the certificate of necessity has not yet been secured in King County its actual procurement is a matter of a short time. Mr. Charles C. Ralls, Deputy Prosecuting Attorney is in charge of the case.

About 90% of the lands in the dam site and retarding basin area are in the name of Mountain Development Company and the White River Lumber Company, both of which are subsidiaries of the Weyerhaeuser Timber Company, of Tacoma. On the 13th of January 1937 Messrs. Belcher, Ralls, R. H. Thomson, and the writer met in conference with the Weyerhaeuser officials in their Tacoma office. The company officials present were, Mr. Weyerhaeuser, Directing Vice President of the Company, Mr. Ingram, Manager, Mr. Heidinger, Attorney, and Mr. Ryan, Engineer. The purpose of this meeting was to determine whether or not the lands involved could be procured by negotiation rather than to continue the condemnation suits. Mr. Weyerhaeuser, after somewhat lengthy preliminaries, stated that their board considered their holdings worth about \$50,000. The Inter-County representatives considered this entirely too high to recommend to you and requested that they detail some of the sources of this value. Mr. Weyerhaeuser stated that the assessed value on the lands could in no way indicate actual values, inasmuch as these lands had been carried for a number of years as crop producing lands. Mr. Ingram explained that the White River Lumber Company would be put to an additional cost by reason of the construction of the dam in removing the timber from those lands which lie in Pierce County south of the basin. He estimated this additional cost to be about \$1.00 per 1,000 feet of timber to be removed from this district. He further stated that there was approximately

30 or 40 million feet of timber involved. Inasmuch as 30 or 40 thousand dollars of the total land value of \$50,000 appeared to lie in this one item it was thought best that the engineers for both parties go over the situation on the ground and determine if it would be possible to arrive at an agreement as to the cost of this work. We have not had weather fit for this field trip since then.

The attitude with which your representatives approached the conference with this company was that it might be possible to agree upon a figure which we could conscientiously recommend to the board. It is not impossible that we may yet arrive at a purchase price of the land owned by these companies by negotiation. However we recommend that condemnation proceedings, at least for the dam site, proceed in the regular way.

As to the suit of Frank McHugh and L. J. Dowell against the Inter-County in the amount of \$10,765.19 for damage to the McHugh shovel, we recommend that the attorneys in each county be directed to defend with all their energy. We believe the claimant has no moral or legal justification for his suit.

Respectfully submitted,

B.P.Thomas, Chief Engineer  
B.P.Thomas, Chief Engineer.

I concur in the above.

R. H. Thomson,  
R. H. Thomson, Consulting Engineer.

EXPENDITURES FOR THE MONTH OF  
DECEMBER 1936.

ITEM	AMOUNT ALLOWED	EXPENDITURES PREVIOUS MONTHS	EXPENDITURES DECEMBER	EXPENDITURES TO DATE
Buckley Section 1	\$1,000.00	.....	.....	.....
Muckelshoot " 2	1,000.00	.....	.....	...../
Auburn " 3	2,000.00	54.97	.....	54.97
County Line " 4	7,000.00	5,789.05	117.43	5,906.48
Dieringer " 5	2,000.00	782.33	.....	782.33
Roesli " 6	3,000.00	306.30	.....	306.30
Puyallup " 7	2,000.00	.....	.....	.....
Murphy " 8	5,000.00	105.16	.....	105.16
Reservation " 9	5,000.00	14.37	.....	14.37
Gen. Control " 10	8,000.00	7,195.79	561.36	7,757.15
Plant Equipment 11	14,000.00	4,950.85	333.49	5,284.34
Job No. 143 WPA		3,581.78	.....	3,581.78
Job No. 147 Quarry		22,838.75	.....	22,838.75
Job No. 148 WPA		2,194.35	549.06	2,743.41
Job No. 149 Dredge		312.98	297.11	610.09
Job No. 151 Quarry		146.18	280.98	427.16
Stock No. 12		4.20	-23.61	- 19.41
	<u>\$50,000.00</u>	<u>48,277.06</u>	<u>2,115.82</u>	<u>50,392.88</u>

Pierce

King

Total

Budget Levy 1936	20,000.00	30,000.00	50,000.00
Revenues to Dec. 31	168.12	.....	168.12
Revolving Fund	<u>250.00</u>	<u>.....</u>	<u>250.00</u>

Expenditures to Date	20,418.12	30,000.00	50,418.12
Unexpended Balance	<u>20,397.57</u>	<u>29,995.31</u>	<u>50,392.88</u>
	20.55	4.69	25.24

Amount paid by King County Prev. Months	28,238.31
" " " " " in December	<u>1,757.00</u>
" " " " " to date .....	\$29,995.31

Amount paid by Pierce County Prev. Months	20,038.75
" " " " " in December	<u>358.82</u>
" " " " " to Date.....	20,397.57

Amount paid by Both Counties to Date.....\$50,392.88

Amount paid to King County Employees prev. months	13,281.08	
" " " " " " in December	<u>938.55</u>	
" " " " " " to Date.....		\$14,219.63

Amount paid to Pierce County Employees prev. months	10,662.30	
" " " " " " in December	<u>811.15</u>	
" " " " " " to Date.....		11,473.45

Amount paid to Both County Employees to date.....		\$25,693.08
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Respectfully submitted,

B.P.Thomas  
B.P.Thomas, Chief Engineer,  
Inter-County River Improvement.

King County Employees for  
Month of December 1936.

NAME	OCCUPATION	HOURS WORKED	RATE HOUR	AMOUNT PAID	DEDUC TIONS
Ben Brazda	Shop man	152	.75	114.00	1.00
Dan Burns	Donkey Engineer	184	.75	138.00	1.00
Harry Turley	" "	184	.75	138.00	1.00
Ed Hedman	Laborer	176	.60	105.60	1.00
Dave Blake	"	182	.60	109.20	1.00
Harry Walker	Cat. Driver	182	.62 $\frac{1}{2}$	113.75	1.00
R. G. Pierce	Truck Driver	144	.6875	99.00	1.00
R. H. Thomson	Cons. Engineer	Mo		100.00	....
J. E. Qualey	Watchman	24	.4375	10.50	....
Gus Schuler	"	24	.4375	10.50	....
				<hr/> 938.55	7.00
				7.00	
				<hr/> 931.55	

Pierce County Employees

Dave Davies	Watchman	248	.4375	108.50	1.00
J. E. Murray	Foreman	184	.71875	132.25	1.00
M.A. Coleman	Clerk	176	.50	88.00	1.00
Charlie Filkins	Laborer	26	.60	15.60	....
Nester Malone	"	22	.60	13.20	....
Gottlieb Liebelt	"	6	.60	3.60	....
B.P. Thomas	Chief Engineer	Mo		250.00	1.00
F. E. Rogers	Supt. Construction	Mo		200.00	1.00
				<hr/> 811.15	5.00
				5.00	
				<hr/> 806.15	